

IN THE CLAIMS:

Please amend claim 1, and add new claims 31-32 as follows:

1. (Currently amended) A method of forming an insulating film ~~for a semiconductor device for forming~~, on a semiconductor layer ~~exposed on a substrate~~, said ~~insulating film through a reaction between at least oxygen and a semiconductor~~, comprising the steps of:

(a) loading said substrate including said semiconductor layer in a processing chamber; and

(b) generating, within the processing chamber, plasma biased toward said substrate with the processing chamber kept in an atmosphere including oxygen, and subjecting said semiconductor layer to the biased plasma.

wherein an exposed portion of the semiconductor layer on the substrate is oxidized by the biased plasma in the step (b).

A 2. (Original) The method of forming an insulating film of Claim 1, wherein a thickness of said insulating film is controlled by adjusting a degree of biasing the plasma in the step (b).

3. (Original) The method of forming an insulating film of Claim 1, wherein the step (b) is carried out at a temperature of 300°C or less.

4. (Original) The method of forming an insulating film of Claim 3, wherein the step (b) is carried out at a temperature of 200° or less.

5. (Original) The method of forming an insulating film of Claim 4, wherein the step (b) is carried out with a photo resist film formed on said substrate.

6. (Original) The method of forming an insulating film of Claim 1, wherein said insulating film is a gate insulating film of a MIS transistor.

7. (Original) The method of forming an insulating film of Claim 6, further

comprising, before at least the step (b), a step of forming a first active region doped with an impurity of a first conductivity type and a second active region doped with an impurity of a second conductivity type,

wherein a first insulating film and a second insulating film are respectively formed on said first active region and said second active region in the step (b).

*Contd*  
8. (Original) The method of forming an insulating film of Claim 1, further comprising, after the step (b), a step of conducting a heat treatment on said insulating film.

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9. (Original) The method of forming an insulating film of Claim 1, wherein the step (b) is carried out in an atmosphere including nitrogen and oxygen.

10. (Original) The method of forming an insulating film of Claim 9, wherein the step (b) is carried out in an atmosphere including a NO gas, namely, a nitriding oxidation atmosphere.

11. (Original) The method of forming an insulating film of Claim 9, wherein the step (b) is carried out in an atmosphere including oxygen and N<sub>2</sub>, namely, a nitriding oxidation atmosphere.

12. (Original) The method of forming an insulating film of Claim 1, wherein the step (b) is carried out in an atmosphere including O<sub>2</sub> but substantially no nitrogen.

Claims 13-30 (Withdrawn)

31. (New) The method of forming an insulating film of Claim 1, wherein the insulating film is a silicon oxide film.

32. (New) The method of forming an insulating film of Claim 1,

wherein the chamber includes a lower electrode serving as an anode, a bias electrode  
serving as a cathode and opposing the lower electrode, and a high frequency power supply  
for applying high frequency power to the lower electrode through a capacitor,

the substrate is placed on the lower electrode in the step (a), and

the biased plasma is generated by applying the high frequency power to the lower  
electrode in the step (b).